

## REMARKS

### Claim Changes

Claim 13 is amended to recite “generating, in the feedback loop, a loop frequency response having at least one pole and at least one zero, and a closed loop frequency response being characterized by a closed loop bandwidth.” These changes are based at least on FIG. 5 and FIG. 6 and the accompanying description on page 9 line 25 to page 13 line 4 of the specification as filed, and similar language deleted from claim 13 with this amendment. Thus, no new matter is added.

Claim 18 is amended to clarify the language.

No amendment made is related to the statutory requirements of patentability unless expressly stated herein. No amendment is made for the purpose of narrowing the scope of any claim, unless Applicant had argued herein that such amendment is made to distinguish over a particular reference or combination of references. Any remarks made herein with respect to a given claim or amendment is intended only in the context of that specific claim or amendment, and should not be applied to other claims, amendments, or aspects of Applicant's invention.

### Rejection of claim 13 under 35 U.S.C. 112, first paragraph

In response to the rejection of claim 13 under 35 U.S.C. 112, first paragraph, that claim 13 includes a single step, Applicant has amended claim 13 to recite the additional step of “generating, in the feedback loop, a loop frequency response having at least one pole and at least one zero, and a closed loop frequency response being characterized by a closed loop bandwidth.” Accordingly, Applicant respectfully requests the rejection be withdrawn.

### Rejection of claim 18 under 35 U.S.C. 112, second paragraph

In response to the rejection of claim 18 under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention, Applicant has amended claim 18 to clarify the language. Specifically, claim 18 has been amended to recite “An integrated comprising

the feedback loop of Claim 1.” Accordingly, Applicant respectfully requests the rejection be withdrawn.

Rejection of Claims 1, 2, 4-9, 13-18, 20, and 22 under 35 U.S.C. § 103 (a) as being unpatentable over US 5,722,056 (Horowitz) in view of ‘Noise Performance of a Cartesian loop Transmitter’ (Kenington)

Applicant respectfully traverses the rejection of claims 1, 2, 4-9, 13-18, 20, and 22. Reconsideration is respectfully requested.

Applicant respectfully submits that the combination of Horowitz and Kenington does not teach or suggest all the claim limitations as set forth in independent claims 1, 13, 20, and 22. Specifically, independent claims 1 and 20 recite “at least one adjustable zero element and at least one adjustable pole element are operable to change the bandwidth of the feedback loop”, and independent claims 13 and 22 recite “moving a pole in the loop frequency response using the at least one adjustable pole element yielding a change in the closed loop frequency response,” which are not taught or suggested in the combination of Horowitz and Kenington.

Horowitz is directed to a linearizer arrangement for compensating for non-linearity in a power amplifier, for example a cartesian loop with training arrangement, wherein the linearizer arrangement is characterized by an automatic gain control means in the amplifier loop and control means to maintain a constant closed loop gain (see col. 2, lines 41 through 49 and col. 8, lines 3 through 7 of Horowitz). Kenington is directed to a derivation of the noise performance of a cartesian loop transmitter and highlights the design methods that may also be employed in order to optimize its noise performance (see abstract, Kenington).

Applicant respectfully disagrees with the statement on page 5 of the Office Action dated July 9, 2007 that the combination of Horowitz and Kenington describes at least one adjustable zero element and at least one adjustable pole element that are operable to change the bandwidth of the feedback loop. The Office Action specifically refers to figures 1 and 2 (element 26) and to col. 6, line 57- col. 8, line 7 of Horowitz as describing an adjustable zero element and an adjustable pole element inherently operable to change the loop bandwidth. This analogy is, however, a mischaracterization of Horowitz. In col.

6, lines 60-65, col. 7, lines 35-38 and col. 8, lines 4-8, Horowitz describes “a cartesian feedback transmitter . . . modified so as to include AGC circuitry. The timer controls an AGC block which senses the error voltage and controls the loop attenuator. The AGC block contains the dynamics to control the AGC loop...The dynamics inside the AGC block (zeros, poles and gain) are dependent on location of the attenuators in the forward path...the AGC circuit to measure the error signal and adjust the attenuation in the loop to maintain constant and consistent loop gain.”

With reference to the above citation, Horowitz, at best, describes an automatic gain control circuitry including poles and zeros operating to maintain a constant loop gain. However, constant loop gain, as described in Horowitz, does not suggest a change in loop bandwidth or closed loop frequency response. Applicant’s claims 1 and 20, on the other hand, recite “at least one adjustable zero element and at least one adjustable pole element operable to change the loop bandwidth.” Further, Applicant’s claims 13 and 22, recite “moving a pole in the loop frequency response using the at least one adjustable pole element yielding a change in the closed loop frequency response.” Therefore, Applicant respectfully requests the examiner to provide exact citation (line numbers) showing “at least one adjustable zero element and at least one adjustable pole element operable to change the loop bandwidth” and “moving a pole in the loop frequency response using the at least one adjustable pole element yielding a change in the closed loop frequency response” or withdraw the rejection.

Further, Office Action refers to Table 1; Fig. 11; page 467-468, section II; page 474, section IV of Kenington and states “Kenington discloses a Cartesian feedback loop (Fig. 1) and further discloses at least one adjustable zero element coupled and at least one adjustable pole element around the feedback loop, wherein the at least one adjustable zero element and at least one adjustable pole element are operable to change the loop bandwidth of the feedback loop.” Applicant disagrees. Instead, in table 1; Fig. 11; page 467-468, section II; page 474, section IV, Kenington describes a “typical noise ‘frequency response’” or in other words “the frequency characteristics of the noise” (see page 473). More particularly, the cited passage in Kenington describes what is illustrated in figures 11 and 12 of the paper, which is namely that “at high values of loop gain, a peak in the [noise frequency] response exists around 4.5 MHz . . . [which] will manifest

itself as peaks in the noise floor”. The reference then goes on to point out that this “first-order model used to produce the graph in FIG. 11 is not sufficiently accurate at high frequencies to be able to predict the frequency and magnitude of the peak. . . A more accurate model would need to include the complex effects of the poles and zeros around the loop”.

With reference to above citation, Kenington, at best, describes a noise frequency response and mentions that poles and zeros can have complex effects around the loop (although such effects are not shown in the drawings or described in the text). Whereas Applicant’s claimed invention is directed to adjustable poles and zeros that operate (when moved) to change the loop bandwidth of the feedback loop and/or to yield a change in the closed loop frequency response. Further, Kenington’s effect of poles and zeros merely suggests effects of a predefined placement of poles and zeros based on the “practical Cartesian loop transmitter [that] was constructed” for purposes of testing the noise models set forth in the paper (see page 470), but does not suggest moving a pole in the loop frequency response using at least one adjustable pole element to yield a change in the closed loop frequency response as set forth in independent claims 13 and 22. Therefore, Applicant respectfully requests the examiner to provide exact citation (line numbers) showing “at least one adjustable zero element and at least one adjustable pole element operable to change the loop bandwidth” and “moving a pole in the loop frequency response using the at least one adjustable pole element yielding a change in the closed loop frequency response” or withdraw the rejection.

Accordingly, the combination of Horowitz and Kenington do not teach or suggest the claim limitation of “at least one adjustable zero element and at least one adjustable pole element operable to change the loop bandwidth” as recited in independent claims 1 and 20, and the limitation of “moving a pole in the loop frequency response using the at least one adjustable pole element yielding a change in the closed loop frequency response” as recited in independent claims 13 and 22, so the Applicant respectfully requests withdrawal of the rejection of claims 1, 13, 20, and 22 under 35 U.S.C 103.

For the above reasons, Applicant submits that claims 1, 13, 20 and 22 are not obvious in view of the combination of Horowitz and Kenington, and therefore that the

rejection of claims 1, 13, 20 and 22 under 35 USC 103 should be withdrawn. Applicant requests that claims 1, 13, 20 and 22 may now be passed to allowance.

Dependent claims 2, 4-9, 11, and 14-18 depend from, and include all the limitations of independent claims 1, 13, 20 and 22. Therefore, Applicant respectfully requests the reconsideration of dependent claims 2, 4-9, 11 and 14-18 and requests withdrawal of the rejection of these claims. Applicant requests that claims 2, 4-9, 11, and 14-18 and 22 may now be passed to allowance.

Rejection of claims 1, 2, 4-9, 13-18, 20 and 22 under 35 U.S.C. § 102 (e) as being anticipated by US 6,859,097 (Chandler)

In response to the Office Action dated July 9, 2007, Applicant herein submits the attached declaration under 37 C.F.R. § 1.131 swearing behind the reference U. S. Patent No. 6,859,097 (Chandler) relied upon in the Office Action to support a rejection under 35 U.S.C. 102(e) of claims 1, 2, 4-9, 13-18, 20 and 22. The declaration, including the attachment referenced therein, serves to establish conception in the United States of the subject matter of claims 1, 2, 4-9, 13-18, 20 and 22 in the present patent application on a date prior to the earliest effective date of the Chandler patent of May 14, 2001 and diligence to the filing of the present patent application on August 20, 2001. Accordingly, Applicant respectfully requests the withdrawal of the rejection and allowance of claims 1, 2, 4-9, 13-18, 20 and 22.

Acknowledgement of Allowable Subject Matter

Applicant thanks the Examiner for indicating the allowability of claim 12 once amended to be rewritten in independent form to include the limitations of the base claim and any intervening claims. Applicant defers amending the claim to give the Examiner the opportunity to consider Applicant's remarks enclosed herein.

Conclusion

Applicant has reviewed the other references of record and believes that Applicant's claimed invention is patentably distinct and nonobvious over each reference taken alone or in combination. Applicant respectfully requests that a timely Notice of

Allowance be issued in this case. Such action is earnestly solicited by the Applicant. Should the Examiner have any questions, comments, or suggestions, the Examiner is invited to contact the Applicant's attorney or agent at the telephone number indicated below.

Please charge any fees that may be due to Deposit Account 502117, Motorola, Inc.

Respectfully submitted,

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